

PROJECT TITLE : BIOTECHNOLOGY
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NITRATE MONITORING

The system for a continuous nitrate measurement and a controlled glucose addition to tobacco extracts was installed and is working (1).

TWO STAGE DENITRATION (2)

A normal NINO denitration of a tobacco extract containing 1118 ppm NO_3^- - N was run in a first fermenter. The dilution rate was set at 0.2 hr^{-1} . The denitrated extract was continuously pumped into a second fermenter and mixed with the same amount of untreated extract. The total flow into the second fermenter corresponded to a dilution rate of 0.11 hr^{-1} and had a nitrate - nitrogen content of 546 ppm. No additives were supplied.

In the second fermenter another 180 ppm NO_3^- - N were eliminated. Thus the total extract, that had been treated in the two fermenters, had a nitrate reduction of 67%. However the amount of glucose used would give only a 50% reduction in a one-fermenter denitration.

The second fermenter could also be emptied each time, as soon as it was filled. In this fed-batch system the total nitrate reduction rose to 76%.

Trials continue to improve this process.

REFERENCES

1. M. Thévoz, Monthly Report - Instrumentation and Process Automation, January 1981.
2. JBE - Notebook 800802, p. 30 - 34.

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